

The American Biology Teacher

Vol. 6

OCTOBER, 1943

No. 1

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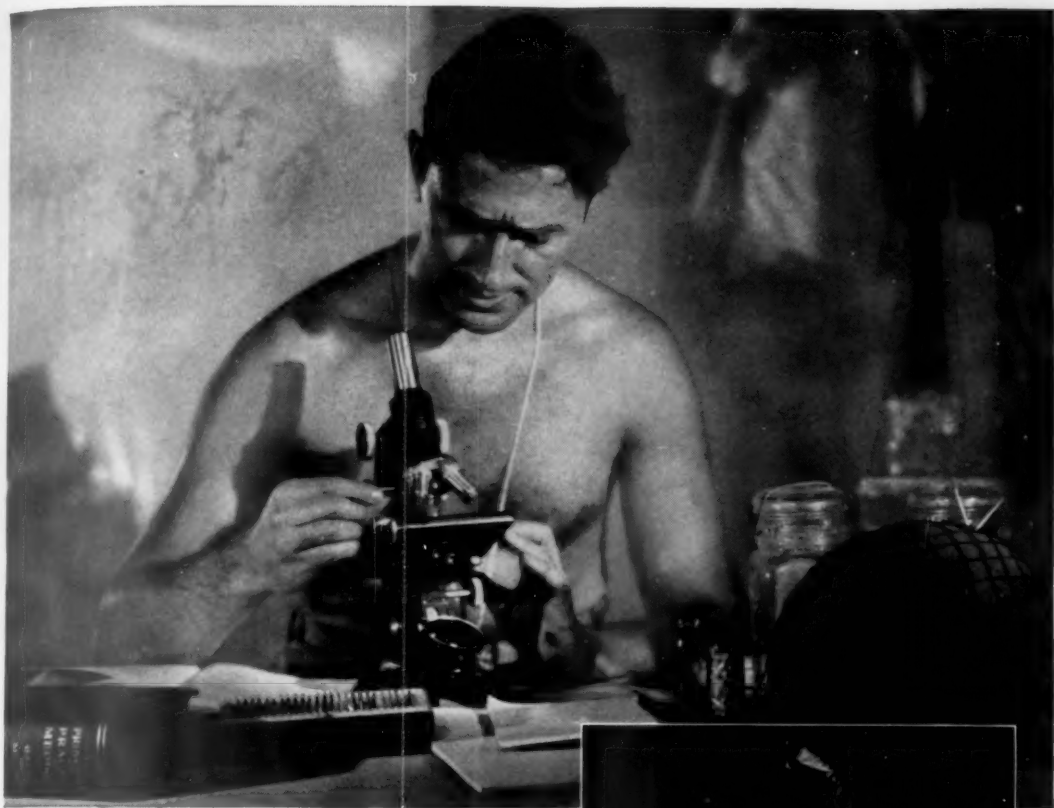
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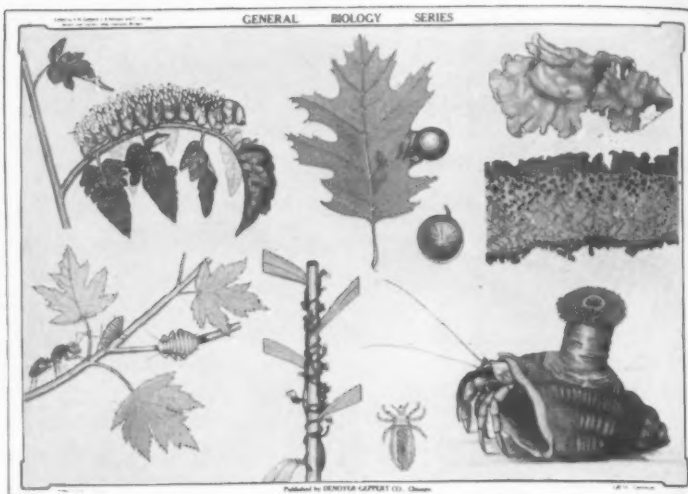


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Please mention THE AMERICAN BIOLOGY TEACHER when answering advertisements

The American Biology Teacher

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OCTOBER, 1943

No. 1

High School Biology Goes to War

LOIS M. HUTCHINGS, BENJAMIN

EPSTEIN and F. MAY BULLOCK

Weequahic High School, Newark, New Jersey

As our country struggles in a fierce global war, the activities of all Americans are more and more directed toward winning a victory for our nation and the planning of a peace that will bring a happy life to every man. To achieve this end, the high school, which is the basic center of manpower training in essential skills, must play a very serious role. Every phase of secondary education has the responsibility of consciously eliminating "business-as-usual" attitudes and of setting about seriously to make direct and valuable contributions.

No one requires convincing that the importance of certain phases of biology has increased since biological information and skills throw light upon many civilian and military problems. With this general attitude in mind the teachers of biology at Weequahic High School, Newark, N. J., have undertaken to streamline and intensify their efforts in making a real contribution to a rapid victory and a better post-war world.

Fundamentals cannot be eliminated without producing a certain amount of

intellectual sterility. Therefore none of the ten main units has been eliminated. It still remains, that with the need for emphasizing wartime problems, certain traditional items must be very much shortened or passed over because of the inescapable limitation of time. It is certain that formal drill in nomenclature, the memorizing of complicated morphological terms, a detailed study of invertebrates, and similar items are the type of topic that can most readily be spared.

The changes which have been made do not involve techniques of teaching, for it is axiomatic that good methods are always necessary for obtaining efficient results regardless of what outcomes are desired.

Because it is felt that it may be of some use to others or that it may arouse a discussion which will enrich biology courses, we have prepared this very brief outline which summarizes the new emphases in our teaching. We hope it will help prepare our students for more intelligent participation in the war effort.

We have shortened our units on

ecological interrelationships, plant biology, classification and certain phases of genetics. Our units on reproduction and behavior retain their former length. The topics of physiology, nutrition and disease have been expanded.

NUTRITION

During the present emergency an adequate diet for the maintenance of health is a patriotic necessity. Our students learn the fundamentals of proper nutrition to meet their personal requirements and consider those of war workers engaging in jobs which require varying degrees of physical activity. An especially new problem lies in the revision of standards of nutrition for women participating in heavy industrial occupations. Today it is also necessary to develop skill in providing adequate diets for civilian needs as we enter a period during which the great majority of processed foods and sources of protein are rationed strictly. Students must be led to examine values in foods and to learn to substitute for those in which shortages exist. Comparisons with dietary standards of other nations at war are also made. Consideration is given to the problems involved in feeding a mobile armed force. These include dehydration of foods, rapid freezing, enriching of foods, vitamin concentrates, and special field emergency rations.

DISEASE

In global warfare, the conveying of accurate information concerning the cause and transmission of diseases endemic to hot countries brings to the fore an extremely important phase of biology. Our men in service must know how cholera, plague, blackwater fever, amebic dysentery, African sleeping sickness, trichinosis, elephantiasis and other diseases are contracted; they must also be

taught basic precautionary measures. In this connection the principles of camp sanitation are studied. Certain phases of proper first-aid treatment of wounds and burns and the new methods of plastic surgery are given attention.

In view of the manpower hours lost in war industries as a result of preventable diseases, all pupils need an understanding of disease-causing organisms and their methods of spread. Suitable preventative and control measures are essential facts which are emphasized. Confused ideas regarding anti-toxins, toxoids, serums, vaccines, diagnostic disease tests, and the like are cleared up. Attention is paid to the specific protective inoculations given to those inducted into the armed forces.

The rise in tuberculosis, typhus fever, diphtheria, food deficiency diseases, and plague in Axis-dominated countries is pointed out with a view to demonstrating the enemy's total disregard for human welfare and dignity.

Conscious guidance through reading and discussion is given pupils who wish to enter the professions of nursing, hospital technicianship and medicine.

BIOLOGY OF FLIGHT

At present this work is not presented as a single unit since its many separate phases seem best treated as portions of several units. In autumn or in late spring when birds and insects may be studied in the out-of-doors, the principles of streamlined body, proper fore and aft balance, lift due to cambered wing, flight motions, and breaking speed are studied. An understanding of the aviator's adjustment to air pressure, to diminished oxygen supply, to the effects of acceleration is developed only after the structure and function of the circulatory and respiratory systems have been thoroughly studied over a period of several weeks.

The transmission of air-borne diseases and pests is discussed in appropriate units.

PHYSIOLOGY

It is needless to point out that men and women in uniform require an intelligent understanding of the normal functioning of their bodies in order to make the best possible adjustment to emergencies. Civilians, likewise, make fewer demands upon the limited medical facilities when there is a functional understanding of digestion, respiration, circulation, excretion and reproduction. Special items like blood banks are considered here. In the main, topics which are fundamental remain unaltered and are given greater emphasis.

PLANT BIOLOGY

An opportunity for biology students to participate directly in the war effort is opened up during the spring term through the Victory Gardens. Experiments dealing with soil acidity, lightness, need for enrichment, quality of seed, etc., are performed and vegetable seedlings grown. This is correlated with a sound understanding of plant structure and physiology which culminates in a realization of the essential importance of chlorophyll as the energy-harnesser of the world.

INTERRELATIONS AND CONSERVATIONS

Among the topics incidental to this unit are the principles of concealing coloration and camouflage. Of far greater significance as a basis for a reasonable attitude toward conservation measures are the concepts of (a) the dynamic balance at which the various physical and biotic factor in a mature community arrive, and (b) the constant cyclic recurrence of unexplained superabundances of organisms, known as epidemics. This is stressed in connection

with the practical fight against insects and weeds—enemies of food production.

The long-range view of the ecological effects of war is developed. In this connection items like the scorched-earth policy, the shortage of fertilizers, the increase of insects, increased cultivation of new plants such as guayule, and the substitution of new types of crops are presented. At this point the effects of the introduction of American products in great quantities by way of lend-lease aid and the new products which our overseas troops will have learned to like are discussed from the standpoint of economics.

BEHAVIOR

This unit is used to study the development of behavior that may lead to emotional stability during the strain of war. The problems of emotional instability and behavior abnormalities, such as individual hysteria, courage, depression, and melancholia are carefully evaluated.

As a part of this unit the sense organs are studied. The subject matter is so developed that the methods employed by various branches of the armed forces for testing vision, balance and hearing are presented.

HEREDITY AND RACISM

The fundamental Mendelian principles of inheritance which are developed thoroughly serve as a background for analyzing the errors in the theories of racial superiority as propounded by the Axis biologists. The faulty concepts of "racism" are shown to have no biological basis. It is further pointed out that the Nazi theories of human social possibilities are founded upon chauvinistic doctrines. There is an analysis and criticism of the sterilization of the "unfit" by the Nazis. An evaluation is made of the contributions of representatives of oppressed groups, like the negroes, to the

culture of the United States. Finally, there is a discussion of the development of a program of democratic eugenics in a post-war world.

In conclusion, may we point out a most important contribution of biology

shared in common with all sciences. It forces the pupil to remove previous bias and to deal realistically with facts and their implications rather than to rely upon prejudice, sentiment, or previous misinformation.

A "Key" to Corrections for Laboratory Drawings

MARY D. ROGICK

College of New Rochelle, New Rochelle, New York

A good deal of the biology instructor's time is spent in grading papers, laboratory drawings and experiments, particularly if the classes are large. The value of this laboratory and outside work to the proper scientific development of the student is well recognized. How to evaluate the students' written work and drawings, how to constructively and adequately criticize their work so that they can obtain the most benefit from it (if they feel so inclined), and yet how to do it in a reasonable amount of time so that it does leave the instructor some freedom for other important professional duties has undoubtedly perplexed every biology teacher at some period or other.

Each student is entitled to a clear explanation as to why he or she received a particular grade on each exercise. In extremely small classes this might be pointed out individually or privately, or it might be done by careful, explicit, inconspicuous and very complete corrections or criticisms written on each sheet of the laboratory assignment. However, if one's classes total more than 150 students some other time-conserving scheme

should be devised if one is to make any effort to honestly help the student to improve his work by effective, adequate, constructive criticism of each laboratory assignment. To write down each comment on every laboratory drawing soon becomes a most tedious task. Moreover, there is likely to be a considerable amount of repetition due to the same type of error repeatedly cropping up in different papers. If the instructor is not too conscientious she will undoubtedly give up the idea of careful comments after grading a few of the papers and will content herself with placing an obviously hasty grade on the paper, with the result that students may receive good marks or poor marks without truly understanding why they got them. To some students a paper without any red marks naturally means that there is nothing wrong with it and, when topped with a nice round C, it becomes an object for belligerent bewilderment.

Because of the necessity of devising some time-conserving method of criticizing large numbers of laboratory papers without sacrificing one's duty to the students, the writer began using a mimeo-

graphed "key" or list of numbered comments. A copy of this mimeographed list of 42 common errors or suggestions applicable to student drawings was given to each student, who was to keep it for the entire year and to refer to it whenever drawings were returned. The instructor, instead of writing out each comment, suggestion or criticism in full on the student's paper merely writes the *Key Numbers*, like 7, 10, 4, 25, 33, etc., which correspond to those numbered statements on the "key" list, to which she wishes to call the student's attention. Thus each graded paper has several very meaningful, yet inconspicuous numbers written, either alongside the error or structure or else in one corner of the page. Each student, by looking up those numbers on her "key" can tell what errors were made and what the instructor wants done about them. This system saves the teacher time and manual effort and yet clearly points out to students what their errors are as well as how to correct them. Admittedly this system does take a little time at first but after the teacher has graded a stack of drawings in which the same errors recur with persistent frequency she soon learns the corresponding numbers.

The mimeographed list of 42 comments and criticisms proved inadequate after several semesters' use. Consequently, a longer list was devised and is given below. The criticisms and statements were grouped under several lettered divisions to make it easier for the instructor to locate the appropriate criticism which she wishes to apply. It is hoped that the "key" may prove of help to other instructors who are faced with a similar problem, namely, criticizing student papers conscientiously and completely but in the least possible time. The "key" follows.

KEY TO CORRECTIONS ON LABORATORY DRAWINGS

DIRECTIONS FOR USE OF KEY: Your returned drawings will have a series of numbers on them, either opposite the structure or in a corner of the page. These numbers are not percentages but are "key numbers." This mimeographed list contains several groups of numbered statements, criticisms or suggestions. The numbers on your papers correspond to the numbers on this mimeographed "key." The numbered comments follow.

A. *Answers:*

1. Ambiguous.
2. Not to the point.
3. Too brief.

B. *Commendation:*

4. Very accurate.
5. Drawing technique good.
6. Very original.
7. Printing very nice.

C. *General Appearance (of structure or of page):*

8. Too crowded.
9. Arrangement on page could be better.
10. Drawing technique could be improved.
11. Too smudgy.
12. Do not color.
13. Do not use ink.
14. Use either ink or pencil but not both on the same drawing.
15. Should be neater.
16. Appears to be too hastily done.

D. *Guide Lines:*

17. Need guide lines.
18. Guide lines should not cross.
19. Guide lines should be straighter.
20. Guide lines should be broken up like this - - - - -.
21. To what structure does this line lead.

E. *Interpretation:*

22. Too sketchy or diagrammatic.
23. This is not what was wanted.
24. Need not have shown or added this.
25. Incompletely or inadequately shown or answered.
26. Inaccurate or wrong interpretation.
27. Not typical.
28. Looks too much like text, lantern slide or chart.
29. Looks too much like a neighbor's work.
30. Does not look quite like the specimen we studied in class.

F. *Labelling:*

31. What is the heading for this exercise.

32. What does this whole figure represent.
 33. What is this structure.
 34. Incorrectly labelled.
 35. Too few labels.
 36. Labels should be parallel with top and bottom of page.
 37. Mode of labelling detracts from appearance of drawing.
 38. Please *print* instead of writing this out.
 39. Spelling.
- G. *Miscellaneous:*
40. Please ask me about this.
 41. This assignment or part late.
 42. Assignment not all here, incomplete.
 43. What objective was used.
 44. Hard to make out or understand from your drawing or statement.
- H. *Outlines and Other Lines:*
45. Lines not straight enough. Please use ruler more.
 46. Lines too faint or unsteady.
 47. Lines too dark or broad.
 48. Lines too numerous or reinforced.
 49. Lines not connected neatly.
 50. Use harder pencil. Your present one is too soft.
- I. *Shading:*
51. Should have stippled this.
 52. Stipple instead of shade.
 53. Stippling technique could be improved here.
 54. This should not have been shaded.
 55. Do not use this shading technique.
- J. *Sources:*
56. Source of this tissue or specimen.
 57. Source of this labelling or information.
- K. *Structures or Figure:*
58. Too thick.
 59. Too thin.
 60. Too big.
 61. Too small.
 62. Shape.
 63. Should have omitted this line or structure.
 64. Type of section.
 65. Out of place.

RENEW NOW

The Secretary-Treasurer announces that it will not be possible to send the November issue of *THE AMERICAN BIOLOGY TEACHER* unless your membership is paid up. Renew now and prevent a break in your files.

A SIMPLE MICRO-PROJECTOR

The effective use of the microscope in the classroom has often been a problem to biology teachers. One common practice is to set up the microscope, find the structure to be shown on the slide, and then have each pupil look at it. If you do this, and if you ask each member of the class to tell what he saw, you are in for a surprise. Many of the pupils do not see anything that they are expected to see. This situation will show marked improvement if the teacher makes a labeled sketch of the field on the blackboard.

In using living material, the problem becomes more complex due to the fact that living forms sometimes move about, often entirely out of the field of vision. In that case, even a labeled drawing will be of no help.

It is probably the dream of every biology teacher to have a micro-projector as part of the classroom equipment. A good one costs a great deal, and most school budgets are trimmed close to the edge. It is possible to make a usable micro-projector in a very short time from equipment you have on hand. While the result will not compare very favorably in appearance with the commercially manu-

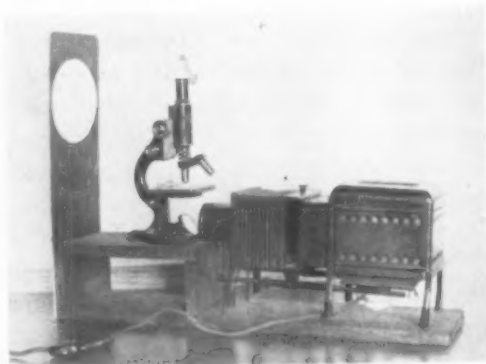


FIG. 1. The micro-projector ready for use.

factured ones, it will be a definite aid to your teaching.

The materials you will need are a microscope (standard size), a stereopticon as a source of light, a foot of #20 cotton-covered wire, a 1×1 inch piece of mirror, beaver board (7×15 inches), and enough lumber to construct the base shown in *Figure 2*.

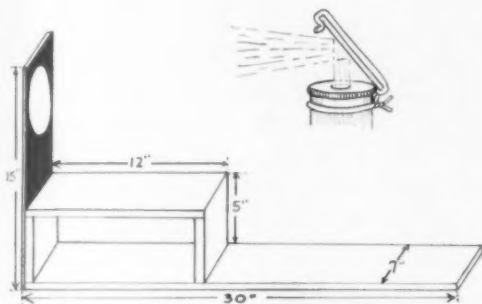


FIG. 2. Plan for construction of the base and attachment of the mirror.

The microscope is placed on the upper level of the base, the projector on the lower level. The lens of the projector should come as close as possible to the concave surface of the mirror of the microscope. The differences in the two levels of five inches as indicated in *Figure 2* may be altered to suit the size of your stereopticon. The mirror is to be fastened with wire to the barrel so that it bends the light rays emerging from the lens of the ocular 90° (*Figure 2*). The use of a prism instead of a mirror will result in better reflection, but it will require a more sturdy holder than wire.

Adjust the mirror of the microscope so that the maximum amount of light from the projector is reflected through the barrel. Then adjust the mirror at the top so as to get a luminous circle on the beaver board. A coat of white poster paint on the circular area makes it an effective screen. The remaining surface

of the beaver board may be painted black.

When you have the outfit ready for use, put a slide under the objective, snap on the light of the projector, and focus the microscope as you normally do. The image should be clearly defined and bright enough to see detail.

The advantage of this set-up is that a number of pupils may be shown the slide at one time, and the teacher may point out each structure he wants to emphasize. Living material may be projected in this way, since the accumulation of heat is not rapid.

If you can use an apparatus of this kind, turn the construction of it over to a group of pupils as a project. They will probably incorporate some refinements, and they will certainly make a definite contribution to your teaching equipment.

DEMPSEY J. SNOW,
Garfield Junior High School,
Johnstown, Pennsylvania

NOTE TO LOCAL ASSOCIATIONS

There are more than twenty local, state and regional associations of science teachers and biology teachers affiliated with *The National Association of Biology Teachers*. The meetings of all of these should be reported in the columns of *THE AMERICAN BIOLOGY TEACHER*.

Presidents and secretaries, please see that a report of your meeting is submitted at the earliest possible opportunity. It is often possible to prepare the report at the time of the meeting. Such a report should include a brief resume of the program, or at least a copy of the program, together with such business as might be of general interest. If new officers are elected at meeting time, their names should be included in the report.

Since manuscripts go to the printer almost two months ahead of publication time and since the space in the journal is sometimes scheduled several months ahead, news reports should be submitted as promptly as possible.

THE SIXTH YEAR

With this issue we begin the sixth year of THE AMERICAN BIOLOGY TEACHER. We begin it under the trying conditions of a total war, which has engulfed biology and biology teaching along with everything else. To keep the journal up to its past standard and to increase its usefulness in this critical period requires the help and cooperation of many people.

The members of the staff can be counted on to redouble their efforts for constructive improvement. The readers can help in many ways. They can make contributions in the form of articles, teaching aids, short cuts, laboratory aids and substitutes, "tricks-of-the-trade," criticisms, or suggestions of any other kind. They can make it a point to recommend the journal to their friends and coworkers. They can be sure to mention the journal in correspondence with its advertisers.

The staff page of this issue carries for the first time a name other than P. K. Houdek as secretary-treasurer. It seems such a short time ago that the master of ceremonies was introducing him at the first annual banquet of The National Association of Biology Teachers, at the William Byrd Hotel in Richmond, Virginia, December 28, 1938. He made the remark that since the new organization could not afford a strong-box, it had engaged the services of a particularly sturdy secretary-treasurer, Mr. P. K. Houdek. In these past years "P. K." has given most liberally of his time and effort. Only those who have been associated with him in the business matters of the Association and the journal can appreciate the volume of detail to which he has given his attention. The entire organization owes him a vote of thanks for his long term of service.

LETTERS

Robinson, Illinois

September 1, 1943

To the members of The National Association of Biology Teachers:

Not wishing to hold office beyond the term to which I was last regularly elected, I have turned over the duties of secretary-treasurer to my successor, Dr. George W. Jeffers, of Farnville, Virginia.

Last fall 248 voters decided that I was not to be a County Superintendent of Schools. All last year I doubled in a defense job. I lost a succession of student secretaries to the war effort. Severely burned in a laboratory explosion which prevented my attendance at the meeting in Chicago last April, I topped things off with an acute gangrenous appendix.

All of these and a number of other factors kept me from a good performance for the N. A. B. T. I frankly admit being quite a headache to several presidents. For that I'm very sorry.

I hope to continue to be a friend and helper to the N. A. B. T. until necrosis sets in. To my many friends, adios.

P. K. HOUDEK

* * *

Miss Marie Knauz,

Chairman Membership Committee
Peabody High School, Pittsburgh, Pa.

Dear Miss Knauz:

Enclosed find money order for a dollar and a half for my membership during 1943-44. My address now is: Pvt. M. Rudner 36048256, Co. G, 163rd Inf., A. P. O. #41, c/o P. M., San Francisco, Cal.

It might interest you to know that tough Jap-killers are running through the jungles here collecting butterflies. Men of all ranks are attracted by the beauty of these ——— Lepidoptera. . . . Their (the natives') teeth are stained red from betel nut dope which they carry in a gourd and apply with a stick-stopper. . . .

Very truly yours,

M. A. RUDNER

* * *

"Enclosed is a money order for two years subscription to The American Biology Teacher. I would feel lost in my lab without our fine magazine.

May I suggest that feature articles concerning helpful hints in teaching biology in high schools and short cuts in teaching of many of your units. . . ."

Sincerely,

IRVING C. KEENE,
Senior High School,
Watertown, Massachusetts

President's Report

THE WASHINGTON CONFERENCES

"Physical impairments or defects are hampering the most effective use of manpower in war services. About 25% of the 18-19-year-olds called up for induction are rejected because of physical defects.

"Before Pearl Harbor, about 50% of the approximately 2,000,000 registrants examined were rejected as unqualified for general military service. Of the approximately 1,000,000 men who were rejected 188,000 were disqualified because of teeth or mouth conditions, and 123,000 because of defective vision. Today those rejected because of dental defects are scarcely 0.1% of the total. This means that the Army is forced to take men whose dental condition is such that extensive and long-range treatment by Army dentists will be required. A similar situation exists in connection with eye defects.

"The control of communicable diseases, always important, becomes a matter of great concern in wartime. War creates the conditions conducive to the increase of disease. Movements of population and overcrowding in war production areas favor its spread. Physicians and nurses are taken into the armed forces and there is likely to be a serious drain on hospital accommodations and supplies.

"Today, millions of Americans have diets that are lacking in some of the necessary food factors. According to a survey made in 1936 by the Bureau of Home Economics, U. S. Department of Agriculture, more than a third of the families had poor diets while only about a fourth had diets classed as good.

"Now when youth are being asked to undertake the most hazardous tasks the

world has ever known, they must realize that safety is a means to an end—the end being to get the job done. If carelessness or ignorance causes the loss of a man in the armed forces or in industry, it is a criminal waste.

"With the lowering of the draft age the need for developing emotional maturity sufficient to meet conditions which young people will encounter in the armed services and in industry becomes increasingly apparent. In the past, high schools have offered students too little opportunity to make decisions and to take responsibility."

As a consequence of the above data, the U. S. Department of Education with the collaboration of the U. S. Army, the U. S. Navy, the U. S. Public Health Service and the Children's Bureau prepared a bulletin entitled, "*Physical Fitness*." On May 19 and 20, 1943, a group of teachers were assembled in Washington to review this bulletin and make suggestions for its improvement. The group consisted of Dr. R. Will Burnett of the Pre-Induction Board; Dr. Ruth Grout and Dr. Lund of the U. S. Office of Education; Lela Massey, New York Home Economics Association; Ira C. Davis, Central Association of Science and Mathematics Teachers; Paul F. Brandwein, New York Association of Biology Teachers; Norman R. D. Jones, American Council of Science Teachers; Elizabeth McHose, Physical Education Health Committee; A. H. Pritzlaff, American Association for Health, Physical Education and Recreation; Zachariah Subarsky, American Science Teachers' Association; M. A. Russell, *National Association of Biology Teachers*; and Dr. Philip Johnson, Cornell University, who acted as chairman of the group.

The biology teachers present felt that the bulletin was good, but that it should be implemented further by a teaching plan that could be used by inexperienced teachers. Consequently, June 16, 17 and 18 Messrs. Brandwein, Subarsky, Jones, Johnson and Russell, all active biology teachers, met with Dr. Burnett to write the teaching plan.

The plan agreed upon consists of four units: *Mental Health*, *Communicable Diseases*, *Prevention of Accidents and Treatment of Injuries*, and *Diet*. It is written to give suggested activities, references, films and other teaching aids, and direct teaching in one column and anticipated outcomes in another. Suggestions are also given for launching each unit, and at the end are questions which may be used for a summary. The War Department feels that this should be a Pre-Induction course given for one semester in the twelfth grade.

Another outgrowth of these conferences was the recognition of the need for an organization representing all science teachers to examine and evaluate our teaching in the light of the war emergency and to prepare for the problems of the post-war world. The following resolutions adopted in Washington point to the need of such an organization.

1. That the present problems of science teaching are sufficiently important and urgent to merit the concerted attention of all leaders in science education. It is therefore recommended that a War and Peace Commission be formed with representatives from the national and regional associations as an effective means of attack on these problems.

2. The needs of the armed forces should be critically explored and reports made for the effective meeting of military manpower needs through pre-induction training.

3. Non-military needs should also be critically explored.

4. There are real dangers that purely war-time training may unnecessarily de-emphasize long range goals of science teaching. These goals should be analyzed. It is assumed that many areas to which science

education can contribute with peculiar effectiveness have not been attacked by science teachers with sufficient emphasis. Among these are problems of health, conservation, production and distribution for the needs of a democratic people, support of research, scientific advance, consumership and cooperation with other cultural groups for world stability.

5. Industry and the armed forces have drained the schools of competent teaching personnel. The problem of staffing the schools for sound science instruction should receive the immediate attention of the associations.

6. Upon the basis of the above considerations a war and peace platform of science teaching should be developed, published and released to the educators of the country.

Dr. Philip Johnson of Cornell is acting as temporary chairman to set up this organization. He has asked me to name several members of the National Association of Biology Teachers to act on this Science Commission for War and Peace. I have asked the members of our Executive Board and Presidents of Affiliated Locals if they would be willing to serve on such a commission and nearly all have replied in the affirmative. Report of further action of this Commission will appear in subsequent issues of THE AMERICAN BIOLOGY TEACHER.

M. A. RUSSELL

REPORT OF REFERENCE COMMITTEE ON HY- GIENE AND PUBLIC HEALTH

"Dr. Warren F. Draper, Chairman, presented the following report, which on motion duly seconded and carried, was adopted section by section and as a whole:

"1. Resolution on Giving Intelligent Instruction in Science and Biology to the Youth of America: With the consent of Dr. Borzell, the committee made certain changes in the resolutions, which now read as follows:

"WHEREAS, The appropriate teaching in the secondary schools of science, including biology, is essential to the child's understanding of health and nutrition: and

"WHEREAS, The medical profession is vitally interested in such education; therefore be it

"RESOLVED, That The American Medical Association endorse the principle that every child in the United States be given adequate, sound instruction in high school in basic science including at least one year of biology; and be it further

"RESOLVED, that The American Medical Association through its Bureau of Health Education encourage close cooperation between the constituent state medical associations and component county medical societies and the teacher of science in their respective communities to the end that intelligent instruction in science and biology be given the youth of America.

"Your reference committee has been informed that national organizations which have already endorsed this principle are the American Association of Physics Teachers, American Chemical Society, Mathematical Association of America, Union of American Biological Societies and National Association for Research in Science Teaching.

"The importance of real health education of the proper type in the schools has been forcibly demonstrated by the results of the physical examinations for the draft boards.

"Teaching such as indicated is a fundamental necessity for the proper understanding of the elements of health and physical well being.

"A sound educational basis in the sciences will help to sensitize the student to pseudo-scientific claims, cultism and quackery.

"Your reference committee has ascertained that the resolutions are practicable from the standpoint of the Bureau of Health Education and recommends their adoption as now presented."

(From The Journal of the American Medical Association, Vol. 122, No. 9, p. 612, June 26, 1943.)

CONSTITUTIONAL AMENDMENTS

As indicated in the report of the Chicago meeting of The Representative Assembly (May 1943 issue, page 181), the amendments proposed last spring and announced in the January and February issues (pp. 95, 112) were passed at that meeting. The changes are as follows:

1. To Article IV, Section 4, of the Constitution, dealing with the Executive Board, add the sentence indicated in italics. This section now reads: "The Executive Board shall consist of the immediate past-president, president, president-elect, first vice president, second vice president, secretary-treasurer,

editor-in-chief of the journal, and managing editor of the journal. The duties of the Executive Board shall be to regulate the Association on emergency matters demanding immediate action which cannot be postponed until the next meeting of the Representative Assembly. *The executive board shall be empowered to adjust the amount of membership dues as necessary to cover the cost of the journal and the operation of the Association.*"

2. To Article I, Section 2, of the By-laws, dealing with the president-elect, add the clause indicated in italics. The first part of this section now reads: "The president-elect shall assume all duties of the president in case of the absence of the president. The president-elect shall succeed to the office of president the follow year, *except as provided in Article II, Section 6.*"

3. In Article II, Section 1, of the By-laws, dealing with the nominating committee, change "Representative Assembly" to "Executive Board." The section now reads: "A nominating committee of five classroom teachers that are members in good standing of the association shall be appointed by the *Executive Board*. This committee shall make nominations for the offices of president-elect, first vice president, second vice president, and secretary-treasurer, in conformance with Section 4 of this Article."

4. To Article II of the By-laws, add Section 6, which reads as follows: "*In an emergency, when the Representative Assembly so wishes, officers may be held over for a period of time designated by the Assembly, past the regular time for election. In such event, the postponed election shall be held in time for the newly elected officers to take office before the beginning of the next fiscal year.*"

NEXT MONTH

Suggestions for improvement of the journal come to the editorial staff from various sources and throughout the year. Among those mentioned most often are: instructions for the preparation of manuscripts, occasional student-written articles, occasional reprints of outstanding articles from other journals, a department for "the beginning teacher," a column of "teaching hints," a column of the most useful formulas and recipes for solutions, etc., used by biology teachers, more illustrations, more news items. Some of these are being carried out. We have scheduled for next month a student-written article on *The Mathematics of Digestion* and a report of an article on the change in emphasis in biology for wartime, and are taking this means of calling for help for items for a "beginning teacher" department.

GEORGE IS DOING IT

One of the most pressing problems confronting the Executive Board at its April meeting in Chicago was the selection of someone to replace Mr. P. K. Houdek, who had served as secretary-treasurer since the Association was founded in 1938. "P. K." had given generously of his time and effort, was weighed down with war work and had run into more than his share of hard luck. He could not attend the board meeting because of injuries sustained by an explosion in his laboratory (dabbling in time bombs, we suppose). Hardly had he recovered when he had to undergo an emergency appendectomy, from which he has only now fully recovered.

In these circumstances the board communiated with Dr. George W. Jeffers of the State Teachers College, Farmville, Virginia, who consented to serve as secretary-treasurer for one year. George should be known to most of our members. He was the first vice president of the Association, became president-elect in 1939 and president in 1940. He has served as the representative of the Association on the National Science Committee and has made many contributions to *THE AMERICAN BIOLOGY TEACHER*. He is known among his personal friends as "Jeff." He holds B.S. and M.A. degrees from Boston University and received his Ph.D. from The University of Toronto in 1931. Here is what he has to say for himself:

"After less than two months in harness I realize what I have fallen heir to, and I am certainly glad that I consented to take it on for only one year.

"Changing the office from Robinson to Farmville is bad: names and dues are likely to become mislaid and inconveniences are almost certain to follow. I ask your indulgence. Please call such

matters to my attention and I shall do my best to make amends. Change of offices was bad enough, but add to that the fact that the dues were raised to \$1.50 resulting in a number of fresh headaches for the new secretary-treasurer.

"Memberships are coming in nicely, largely as a result of diplomatic prodding by the capable Chairman of our Membership Committee, Miss Marie Knauz. But we need more.

"May I ask that you get your dues in early, and write your name and address plainly, especially in giving changes of address. I have not yet sent out any membership cards, but you should have them by the time this appears. Your secretary-treasurer is new on the job. He is getting off to a slow start, but he means to do the best he can."

AMERICAN EDUCATION WEEK

"Education for Victory" is the general theme for the twenty-third annual observance of *American Education Week*, November 7 to 13, 1943. Today, when we are engaged in a global struggle for freedom, we come to realize as never before the power of ideas in shaping the actions of people, and the importance of the educational processes in the national welfare. A better understanding of the contribution the schools are making to the war effort and to the winning of the peace is imperative if the schools and education are not to suffer even more than they already have.

Even if the schools were not related to the immediate war effort, it would still be suicidal social policy to neglect education in wartime. We are fighting for the right of our children to live in a free world. Education for victory is more than basic technical training to the end that we may win the war; it is likewise preparation for an enduring victory in the years of difficult readjustments that must be made in the postwar period.

The National Educational Association has prepared materials of various types to assist local teachers and school systems in their observation of this important week. For information write to The National Education Association, 1201 Sixteenth Street, N.W., Washington 6, D. C.

CHICAGO BIOLOGY ROUND TABLE

The Annual Meeting of the CHICAGO BIOLOGY ROUND TABLE was held at the Top of the Town Restaurant on June 4, 1943. The following officers were elected for the year 1943-1944:

President: Miss June Stamm, 5103 Pensacola Ave., Chicago, Illinois, Amundsen High School.

Vice President: Miss Lois Conner, 9716 Vanderpool Ave., Chicago, Illinois, Fenger High School.

Secretary-Treasurer: Mrs. Charlotte Schwartz, 4550 N. Hermitage Ave., Chicago, Illinois.

Corresponding Secretary and Chairman of the Membership Committee: Miss Florence Arenberg, 2741 Winnemac Ave., Chicago, Illinois, Lane Technical High School.

The evening's program was entertaining as well as instructive and of special interest at this time. Dr. Karl P. Schmidt, Chief Curator of Zoology at the Field Museum, spoke on *A Naturalist in the South Seas*. With the aid of colored slides taken when he was a member of the Crane Pacific Expedition thirteen years ago, Dr. Schmidt gave us a vivid picture of the natural beauty, the interesting wild life, and the people of the West Indies, the Galapagos, the Society Islands, New Hebrides, Guadalcanal and the Solomon Islands at a time when they were the most peaceful place on earth.

The programs for the year 1942-1943 were outstanding for their timeliness and interest.

J. L. SLOANAKER

Word has been received of the death of Associate Editor Joseph Lyday Sloanaker, of Spokane, Washington, July 26, 1943. Mr. Sloanaker was born in Iowa in 1886 and was a graduate of Grinnell College. He moved to Spokane in 1918 and had been a teacher of biology at North Central High School ever since.

He was active in the Pacific Northwest Bird and Mammal Society and was at the time of his death the president of The Spokane Bird Club. He was active in the Boy Scout movement and was its bird study examiner in Spokane. He was the author of numerous short articles, and the compiler of *The Birds of the Spokane Area*, published last year by The Spokane Bird Club. He was a "charter member" of the editorial board of THE AMERICAN BIOLOGY TEACHER, having been an associate editor since the establishment of the Journal in July 1938. Actively interested in all phases of the Association and the Journal, he made many contributions, direct and indirect, to its welfare.

The following subjects were ably presented:
The Relation of Biology to Aviation, Dr. Louis Krasno, Department of Physiology, Northwestern University.

Sulfa Drugs, Their Use in Medicine and Surgery, Dr. William S. Hoffman, Professor of Physiological Chemistry, Chicago Medical School.

Circulation of Blood, Dr. Arthur H. Steinheis, George Williams College.

The Place of the Biology Teacher in the Victory Garden Program, Mr. Frank Balthis, Horticulturist, Garfield Park Conservatory; Mr. M. C. Lichtenwalter, Lane Technical High School.

Revolution in Foods, Miss Marye Dahnke, Director of the Home Economics Department of the Kraft Cheese Company.

A Naturalist in the South Seas, Dr. Karl P. Schmidt, Chief Curator of Zoology at the Field Museum.

ESTHER A. OLSON,
Corresponding Secretary, 1942-1943

FIVE YEARS AGO

(From *The American Biology Teacher*,
October 1938)

CHARTS AND TABLES can be made on cheap, smooth-surfaced window curtains. Students with artistic ability will find this type of project possessing a good deal of appeal.

TO DEMONSTRATE MOSS PLANTS which are easily lost or broken on laboratory tables, fasten the moss plant on a microscope slide with gummed transparent mending tape. (Scotch tape.)

X-RAY NEGATIVES may be obtained from either the school physician or a local doctor. These are of considerable value in showing the actual relation of body parts to each other.

Quotations from "Biology Teachers Begin to Pull Together," the lead article in Volume I, Number 1: "This association, though launched and named—and possessing a Journal—is nevertheless still quite incomplete. When, or if, it enrolls most of those who teach secondary school biology—and others with allied interests—it can accomplish much or most of the purposes which are calling it into existence. . . . Though there are perhaps 20,000 teachers of biology in our secondary schools those teachers have hitherto had no national organization and no Journal to give them help, encouragement, and a voice. . . . Knowing that every bad, vacuous or unscientific course of biological instruction that has been or is now given in our secondary schools serves to jeopardize the place of life-science in the education of our people let us at once utilize to a maximum the strength that this new National Association can develop." These statements by Dr. Oscar Riddle are as important today as they were in that first issue five years ago.

MEMBERSHIP COMMITTEE

The membership committee consists of persons appointed by the former chairman, Immediate Past President Homer A. Stephens, now in the armed services. Assigned to a region or state, each member assumes initiative for securing renewals and new members in his area. The committee eventually will be enlarged to include a representative in each state, it is hoped.

Following is the personnel of the committee at the time of going to press:

1. Warren Bartlett, New England States
2. Ruth Dodge, New York State, except New York City and Long Island
3. Maurice Bleifeld, New York City and Long Island
4. Lee R. Yothers, Pennsylvania, New Jersey and Delaware
5. William Katz, Michigan
6. Lucile Evans, Wisconsin
7. Prevo Whitaker, Indiana
8. Arthur Brookley, Illinois
9. Brother H. Charles, F. S. C., Minnesota
10. Paul Lessig, Kansas
11. Mrs. Lilla Armstrong, California
12. Dorothy Miller, member-at-large.

During the summer the committee lost a valuable member in the passing away of Mr. J. L. Sloanaker, Washington.

Committee activities thus far:

May 21, 1943: 700 postal card reminders for renewals.

May 28, 1943: 1260 circulars with enrollment card and return envelope enclosures.

June, 1943: 240 circulars as above.

September, 1943: 15,536 postals sent to biology teachers on the "Turttox" mailing list.

Invitations to membership published in various State Teachers Journals.

Invitations to membership issued at various Teachers Institutes and Biology Teachers Meetings.

At the time of going to press the chairman had received 600 renewals and new memberships. The AIM is 3000 members—this fall.

MARIE KNAUZ,

*Chairman, Membership Committee,
Peabody High School,
Pittsburgh, Pennsylvania*

CONSERVATION UNITS

The Conservation Committee, appointed by President Russell in accordance with action taken by The Representative Assembly at the Chicago meeting, April 24, 1943, is at work under the chairmanship of Dr. E. Laurence Palmer of Cornell University.

The committee plans to prepare a series of four units on conservation subjects, to be presented in four issues of THE AMERICAN BIOLOGY TEACHER, probably December, January, March and April.

This is a variation of the "special issues" idea. The four units will together comprise a larger unit or teaching manual. Criticisms, suggestions and other comments from readers will be most welcome. Address the editor or the chairman of the Conservation Committee.

The topic of the December unit will be Wildlife Conservation. The others will be announced later.

SPECIAL ISSUES

The Special Issues which appeared in Volumes 4 and 5 have met with general approval and the series will be continued. Issues planned now are *School Gardening*, with M. C. Lichtenwalter, Lane Technical High School, Chicago, Illinois, as chairman, and *Ornithology*, with Miss Betty Lockwood, Redford High School, Detroit, Michigan, as chairman. Suggestions for either of these issues should be sent promptly to the respective chairman.

Special issues published thus far are as follows:

Field Trips—October 1941

Visual Aids—November 1941

Nature Study—February 1942

Biology Clubs—March 1942

National Defense—April 1942

Consumer Biology—October 1942

Health and Hygiene—November 1942

Conservation—January 1943

Vocational Biology—April 1943

Some consideration has been given to issues in *Photography*, *Laboratory Aids and Substitutes*, and *Genetics*, but no chairmen have been selected and no definite plans are under way.

It was decided by the Editorial Board at the Chicago Meeting not to publish a special issue on the role of biology in the war, but rather to print at the first opportunity articles on this subject. A delay of several months is usually necessary for the completion of plans and the gathering and organizing of materials for a special issue.

As a modification of the "special issues" idea, the Conservation Committee will prepare a series of units on conservation teaching. (See note above.)

The editor and associate editors welcome suggestions for other subjects for special issues or for chairmen for such issues. And don't be afraid to volunteer your services if you are interested.

TEACHING BY TASTE

Recalling among our most enjoyable and educational class activities of the past year the pupils always mention the *Apple Day* program. The class celebrated Apple Day on October 30, 1942. A few days prior to this date each pupil was assigned to a committee which planned and arranged the program. As the class assembled on the 30th, the display committee had made and hung attractive apple theme posters, apple market news items, and colorful apple pictures on the bulletin board. Pupils talented in art had chalked bright apple sketches on the board. An outstanding feature was a labelled exhibit of many local varieties of apples.

A master of ceremonies opened the special program as attractive red apple-shaped programs were being distributed. A short preview of why Apple Day is celebrated was given. Since the apple is the favorite fruit in the United States, a *National Apple Week* has been set aside the last week of October. The two masters of ceremonies who had assigned topics according to pupil interest took turns in posing leading questions and calling on various ones in class for special reports.

Delicious refreshments, furnished by the pupils, were served by Home Economics members of the class, in charge of this part of the ceremonies. They consisted of apple sauce and apple jelly on saltines, cider, apple sauce cake, apple kuchen and tiny individual apple pies, served with home-made Dutch cheese. Apples of many varieties were available for tasting. Perhaps the most popular one tasted was the banana apple. The refreshments were served at various intervals in the program where they best illustrated some special topic being presented. A pupil volunteered to render

some "apple" tunes on his harmonica while refreshments were being served.

Of special interest to all was the reference to apples in foreign languages as given by biology pupils taking the classical course.

We didn't know how true the old saying is: "An apple a day keeps the doctor away," but we know the apple is a very popular fruit. The ancient Greeks first thought the apple was poisonous, but later it became sacred to both the Greeks and the Romans. The apple was known and cultivated in Europe as much as 4,000 years ago. It was introduced into England by the Romans and brought to America in 1612 by a governor of one of the colonies. A girl in London gave some seeds of an apple to a ship's captain who brought them to America and in 1820 planted them in Vancouver, Washington. The tree growing from these seeds is claimed to be the oldest apple tree in America.

Fresh apples are about 85% water. The apple contains a certain amount of carbohydrates, minerals, and vitamins. It is above average in the amount of vitamin C. Such vitamins are most prominent in the skin.

A sample of topics chosen:

- Apples in song and verse
- Apples around the world
- Grafting
- Apple pests
- Apple relatives
- Apple cultivation
- Apple storage and marketing
- Nutritional value and favorite recipes
- Apple in Legend and History
- Apple development from flower to fruit
- Economic value in our county, state and nation.

In closing the program the pupils in charge gave a summary of interesting apple facts that had been mentioned in the various class report. Some of these follow. Did you know that:

1. The tomato is called the love apple?
2. Washington and Oregon are the apple centers of the U. S.?
3. Wild apples are found growing in the colder parts of many lands?
4. The apple is a member of the rose family?
5. The apple is related to the blackberry and the mountain ash?
6. The apple was spread over Europe by the crabapple?
7. Some apple trees are known to have been 300 years old?
8. Pectin in an apple is found in the core?
9. The apple has been cultivated since prehistoric times?
10. The United States is the greatest apple country in the world?
11. Annually we produce over 200,000,000 bushels of apples?

HELEN DRUGG,
Keene High School,
Keene, New Hampshire

PREPARATION OF MANUSCRIPTS FOR PUBLICATION

Manuscripts of excellent content often reach the editor's desk in such form that they have to be almost completely reworked before going to the printer. Sometimes teachers write for directions for preparing papers for publication, also there have been several suggestions to the effect that a set of instructions be printed in *THE AMERICAN BIOLOGY TEACHER*. These directions apply particularly to our own journal, although the procedures are more or less standard. It is hoped that this article may stimulate readers with suitable ideas to get them into shape for submitting to the journal.

The manuscript should be typewritten, double spaced, on one side only of a standard weight white paper, $8\frac{1}{2} \times 11$ inch size, with margins of at least an inch on all sides. The writer should keep a carbon copy for reference and as insurance against loss in transit of the original.

The title should be placed at the head of the first page of the manuscript, at least an inch below the top of the page. It should be short, but still indicate the content of the paper as accurately as possible. The wording of a title is necessarily a compromise between brevity and accuracy. In the case of longer articles (about 1200 words or more) the author's name is placed below the title, next his school or other professional connection, followed by the city and state. In the case of shorter articles, news items, reports, editorials, etc., the author's name, professional connection and address are placed at the end of the manuscript.

Subheadings are centered if they are all of equal rank; if there are primary, secondary, etc., headings, the primary ones are placed at the extreme left, the secondary ones indented 5 spaces, those of the third order 10 spaces, and so on.

The wording, grammar and punctuation of the paper should be checked several times. It is well to have the entire article, both the rough draft and the finished form, read by several other persons. Any words that are to be CAPITALIZED in the printed article should be capitalized in the copy; if they are to appear in *italics* in print, they should be underlined in the copy.

References are listed in various ways. For *THE AMERICAN BIOLOGY TEACHER* the most common forms are as follows:

For books: Author (last name first), Exact title of book (underlined), Name of publisher, Address of publisher. Number of pages. Illustrations (if any). Publication date. Price.

For magazine articles: Author, Title of article, Name of magazine (underlined), Volume, number and page or pages. Date.

For bulletins, government publications, theses and the like, no standard form can be specified, since conditions are so variable.

Some samples of references are given here-with:

Morgan, Ann Haven, *Field Book of Ponds and Streams*, G. P. Putnam's Sons. New York, N. Y. 464 pp. Illus. 1930. \$3.50.

Riddle, Oscar, The Preparation of High School Science Teachers, *American Biology Teacher*, Vol. 5, No. 3, pp. 63-65. Dec. 1942.

Palmer, E. Laurence, Fields in Winter, *Cornell Rural School Leaflet*. Cornell University, Ithaca, N. Y. Jan. 1940.

Bell, W. B., and Preble, E. A., Status of Waterfowl in 1934. *U. S. Dept. of Agric. Misc. Pub. No. 210*. Washington, D. C. 1935.

Mentzer, Loren W., *Wildlife Conservation*. Unpublished thesis, Kellogg Library, Kan. St. Tchr. Coll., Emporia, Kan. 1941.

If the topic under discussion is seasonal in nature, the paper must be submitted in plenty of time. For example, manuscripts for THE AMERICAN BIOLOGY TEACHER are sent to the printer on the 22nd of the second month before issue. They should be in the editor's hands several weeks before the deadline, to allow for planning of the issue and for any



FIG. 2. This picture would be improved by a plain light background, giving more contrast between the instruments and the background.



FIG. 1. Size, arrangement and contrast just right for showing the tell-tale tunnels through which termites reach their goal. Courtesy Illinois Natural History Survey.

correspondence that may be necessary. An article dealing with a Christmas subject, which should preferably appear in the November issue, would go to the printer September 22. Such a paper should be received by the editor not later than the first of September.

Many articles are improved by one or more illustrations; for some, illustrations



FIG. 3. As an illustration of a type of wall chart this picture is satisfactory; if it were intended to show details it would be too small and lacking in contrast.



FIG. 4. This picture is satisfactory as an illustration of the project as a whole; as in Fig. 3, the details are much too small for individual illustration.

are essential. These may be either photographs or drawings. Since the publication of illustrations is relatively expensive, they should be selected with care so as to illustrate specific points and to fit in well with the topic under discussion.

Photographs must be clear, of relatively high contrast and glossy finish, and

of such size and arrangement as to bring out the desired points. Some contrast is lost in the half-tone process; one should not submit any pictures that lack clearness and detail in either the lightest or the darkest portions of the significant area. If the shadows are completely black or the highlights completely white the picture will not make a good reproduction. The accompanying photographs, all of which have appeared in previous issues of *THE AMERICAN BIOLOGY TEACHER*, illustrate several of the most important considerations.

Drawings should be made in india ink or other jet black ink on smooth white paper. They may be very simple, in fact the simplest drawings are often the most effective ones. They should ordinarily be drawn at least twice as large as they are to appear in print. The reduction smooths out irregularities and in general improves the appearance of the figure. Figures 6, 7 and 8 are reproduced at the

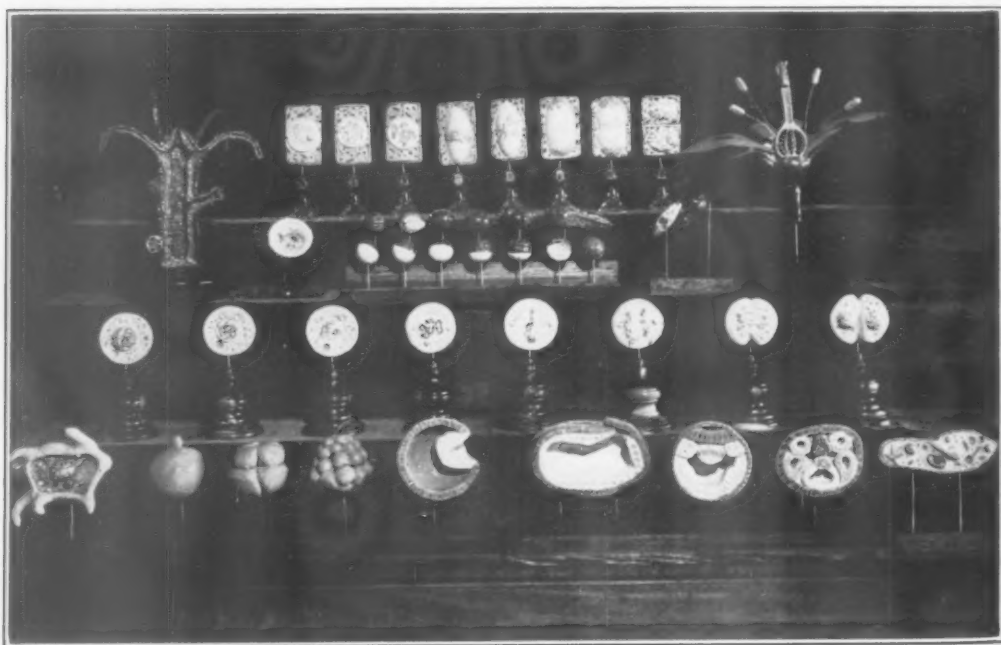


FIG. 5. The rather excessive contrast is justified in this picture since it makes the individual models stand out more clearly.

size drawn, at half size and at quarter size, illustrating the effect of reduction on irregularities, contrast, distinctness of lines and stippling, legibility of lettering, and the like. Note that while contrast is lost in half-tone reproduction of photo-

graphs, it is increased in reproduction of drawings. The other drawings have appeared in previous issues of THE AMERICAN BIOLOGY TEACHER.

Lettering should be large enough so that the smallest letters, (e, o, etc.) are

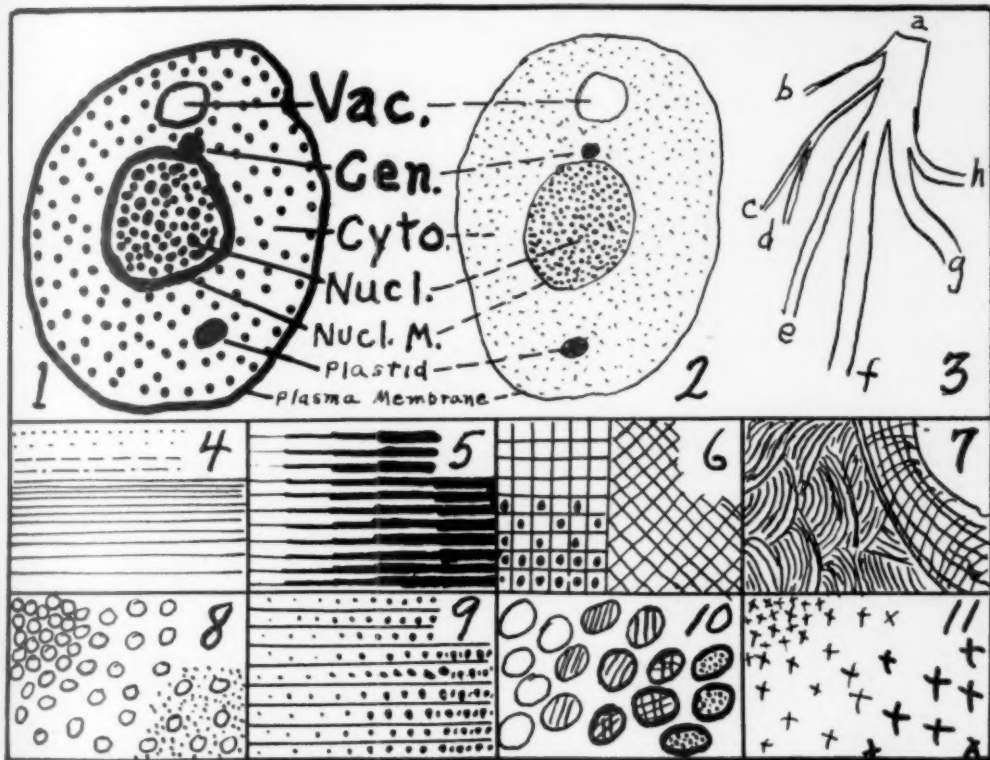


FIG. 6. Drawing reproduced full size, with all irregularities appearing as drawn.

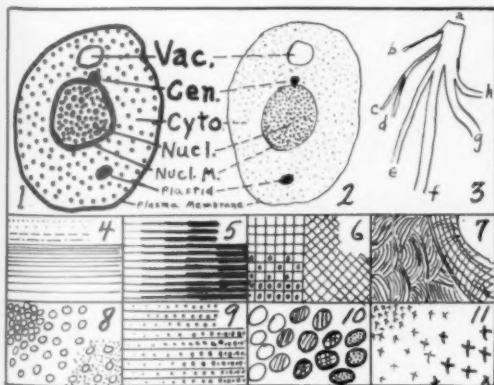


FIG. 7. Fig. 6 reduced to half size; note smoothing of irregularities.

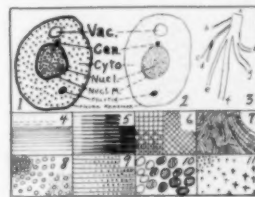


FIG. 8. Fig. 6 reduced to quarter size; note "washing out" of stippling in cell 2 and disappearance of dotted lines in block 4, running together of lines at 3b, reduction of smaller lettering to a size too small for legibility, effect of hatching in block 7, etc.

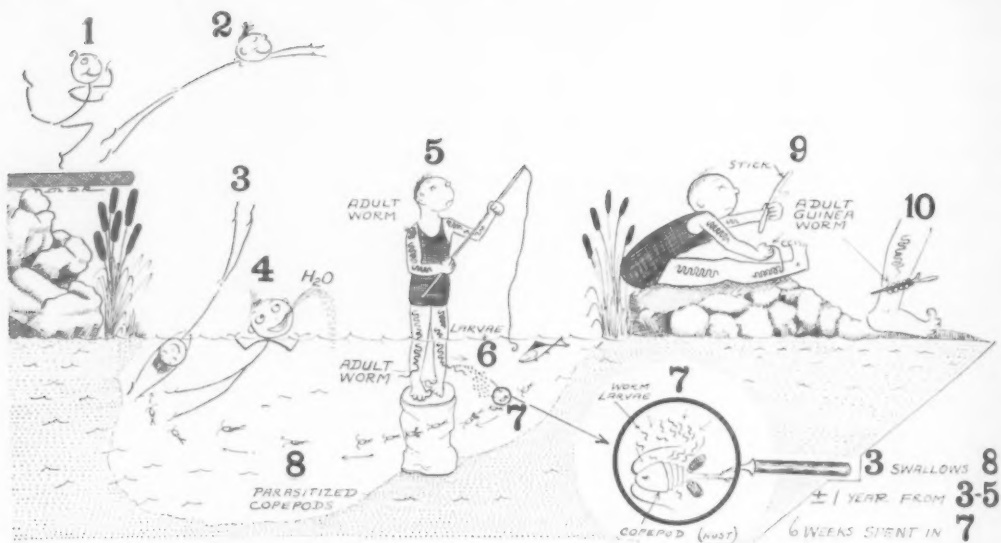


FIG. 9. A simple drawing of the cartoon type may be very effective in bringing out a complicated relationship, here the life cycle of the guinea worm.

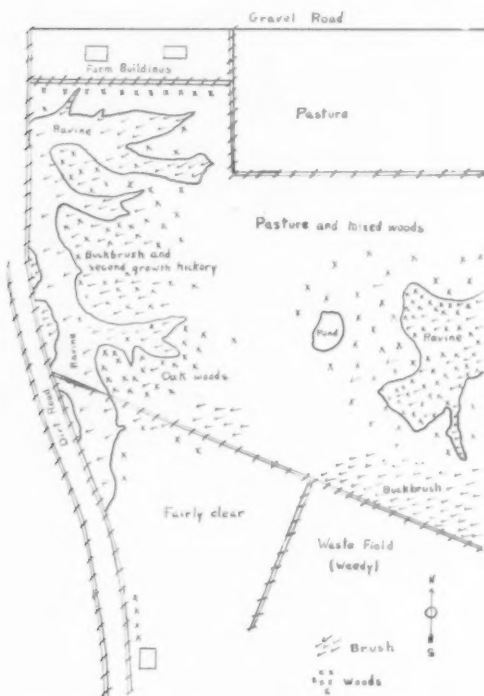


FIG. 10. This figure was reduced from approximately 6×8 ; any further reduction would have made the lettering too small.

at least a millimeter high in the printed figure. Therefore if the illustration is to be reduced to one half the original size, the smallest letters in the labelling should be at least two millimeters high, and so on for other degrees of reduction.

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